

Claims

What is claimed is:

1. A cross flow fan for a cleaning system of  
5 an agricultural combine, comprising:

a plurality of elongate fan blades supported  
in an axial cylindrical pattern about a rotational axis  
of the fan by disk shape fan blade mounting members  
located adjacent axial ends of the blades and rotatable  
10 about the axis, the fan blades having radial outer end  
portions defining an outer diameter of the fan, radial  
inner end portions opposite the radial outer end  
portions, and curved intermediate portions between the  
radial end portions, respectively;

15 wherein each of the fan blades is oriented  
such that the radial outer end portion is at about a 28°  
angle to a line tangent to the fan diameter at the  
radial outer end portion and the radial inner end is  
directed radially inwardly directly toward the axis.

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2. The cross flow fan of claim 1, wherein  
the radial outer end portions of adjacent ones of the  
fan blades are spaced apart by between about 2.3 and 2.4  
inches.

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3. The cross flow fan of claim 2, wherein  
the radial inner end portions of the adjacent ones of  
the fan blades are spaced apart by between about 1.6 and  
1.7 inches.

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4. The cross flow fan of claim 3, wherein  
each fan blade has an overall width as measured between  
the radial end portions thereof of between about 2.5 and  
2.6 inches.

5. The cross flow fan of claim 4, wherein the curved intermediate portion of each of the fan blades has a radius of curvature of between about 2.0 and 2.1 inches.

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6. The cross flow fan of claim 1, wherein the disk shape fan blade mounting members each include axially facing curved grooves for receiving and holding longitudinal ends of the fan blades, at least the  
10 grooves of a center one of the mounting members being adapted for receiving and holding alternating ones of the blades extending in opposite directions.

7. A cross flow fan for an agricultural  
15 combine for generating and directing a flow of air to a cleaning system of the combine, comprising:

a plurality of elongate fan blades supported in an axial cylindrical pattern about a rotational axis by disk shape fan blade mounting members located  
20 adjacent axial ends of the blades and rotatable about the axis, each of the fan blades having a radial outer end portion defining an outer diameter of the fan, a radial inner end portion opposite the radial outer end portion, and a curved shape extending between the radial  
25 end portions;

wherein each of the fan blades is oriented such that the radial outer end portion is oriented at about a 28° angle to a line tangent to the fan diameter at the radial outer end portion and the radial inner end  
30 portion is oriented such that a line tangent thereto will pass through the axis.

8. The cross flow fan of claim 7, wherein the radial outer end portions of adjacent ones of the

fan blades are spaced apart by between about 2.3 and 2.4 inches.

9. The cross flow fan of claim 8, wherein  
5 the radial inner end portions of the adjacent ones of the fan blades are spaced apart by between about 1.6 and 1.7 inches.

10. The cross flow fan of claim 7, wherein  
10 each fan blade has an overall width as measured between the radial end portions thereof of between about 2.5 and 2.6 inches.

11. The cross flow fan of claim 7, wherein  
15 the curve shape of each of the fan blades has a radius of curvature of between about 2.0 and 2.1 inches.

12. The cross flow fan of claim 7, wherein  
the disk shape fan blade mounting members each include  
20 axially facing curved grooves for receiving and holding longitudinal ends of the fan blades, at least the grooves of a center one of the mounting members being adapted for receiving and holding alternating ones of the blades extending in opposite directions.

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13. The cross flow fan of claim 7, wherein  
the fan has a diameter of from about 15 to about 16 inches.

30 14. A cross flow fan for an agricultural combine for generating and directing a flow of air to a cleaning system of the combine, comprising:

a plurality of elongate fan blades supported  
in an axial cylindrical pattern about a rotational axis  
35 by disk shape fan blade mounting members located

adjacent axial ends of the blades and rotatable about the axis, each of the fan blades having a radial outer end portion defining an outer diameter of the fan, a radial inner end portion opposite the radial outer end portion, and a curved shape extending between the radial end portions;

wherein the fan has a diametrical extent of from about 15 to about 16 inches and each of the fan blades is oriented such that the radial outer end portion is oriented at about a  $28^\circ$  angle to a line tangent to the fan diameter at the radial outer end portion and the radial inner end portion is oriented such that a line tangent thereto will pass through the axis.

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15. The cross flow fan of claim 14, wherein the radial outer end portions of adjacent ones of the fan blades are spaced apart by between about 2.3 and 2.4 inches.

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16. The cross flow fan of claim 15, wherein the radial inner end portions of the adjacent ones of the fan blades are spaced apart by between about 1.6 and 1.7 inches.

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17. The cross flow fan of claim 14, wherein each fan blade has an overall width as measured between the radial end portions thereof of between about 2.5 and 2.6 inches.

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18. The cross flow fan of claim 14, wherein the curve shape of each of the fan blades has a radius of curvature of between about 2.0 and 2.1 inches.

19. The cross flow fan of claim 14, wherein the disk shape fan blade mounting members each include axially facing curved grooves for receiving and holding longitudinal ends of the fan blades, at least the
- 5 grooves of a center one of the mounting members being adapted for receiving and holding alternating ones of the blades extending in opposite directions.